

CLAIMS

What is claimed is:

1. A refrigerant cycle comprising

at least two circuits, with each of said circuits having a compressor, a first heat exchanger and a second heat exchanger with an intermediate expansion device, and an economized cycle intermediate one of said first and second heat exchangers and said main expansion device, a line leading from said one of said first and second heat exchangers to an economizer heat exchanger having a tap that taps off a portion of a refrigerant flow in said line, with the main portion of refrigerant flow in said line passing through said economizer heat exchanger, and said portion in said tap passing through an economizer expansion device, and passing from said economizer expansion device into said economizer heat exchanger;

said main portion of refrigerant flowing from said first heat exchanger, through said economizer heat exchanger, to said main expansion device, and then to the other of said first and second heat exchangers, and from there back to said compressor; and

a control for controlling operation of said at least two circuits, said control being operable to turn off or turn on each of said economizer cycles, and to stop or run each of said compressors to achieve a desired system condition.

2. A cycle as set forth in claim 1, wherein said control controls the operation to match provided capacity and demanded capacity.

3. A cycle as set forth in claim 1, wherein said demanded condition is humidity control.

4. A cycle as set forth in claim 1, wherein said desired system condition is control of head pressure.
5. A cycle as set forth in claim 4, wherein said control determines that head pressure should be limited, and moves said system to have a closed economizer cycle on a circuit experiencing an undesirably high head pressure.
6. A cycle as set forth in claim 5, wherein said control determines that head pressure is too low on one of said circuits, and opens said economizer cycle associated with said circuit.
7. A cycle as set forth in claim 1 for two circuits, wherein said compressors associated with each of said two circuits have different capacities, such that eight distinct levels of capacity can be provided by opening or closing said economizer cycles, and running or not running said compressor.

8. A method of operating a refrigerant cycle comprising the steps of:

(1) providing a refrigerant cycle with at least two circuits each having a compressor, a first and second heat exchanger downstream of said compressor, and a main expansion device intermediate said first and second heat exchanger, an economizer intermediate said expansion device and one of said first and second heat exchangers, said economizer heat exchanger having a tap that taps off a portion of a refrigerant flow in said line, with the main portion of refrigerant flow in said line passing through said economizer heat exchanger, and said portion in said tap passing through an economizer expansion device, and passing from said economizer expansion device into said economizer heat exchanger, said two compressors having different capacities; and

(2) controlling said circuit by opening or closing said economizer cycle, and running or stopping said compressors associated with each of said at least two circuits to provide desired levels of capacity.

9. A method as set forth in claim 8, wherein refrigerant cycle includes two circuits.

10. A method as set forth in claim 8, wherein said control of step (2) is utilized to match a demanded system capacity.

11. A method as set forth in claim 8, wherein said control of step (2) is utilized to provide humidity control.

12. A method as set forth in claim 8, wherein said control of step (2) is utilized to control head pressure.

13. A method as set forth in claim 8, wherein said control of step (2) is utilized to lower power consumption if a control indicates that a power consumption level is approaching an undesirably high level.